Co-payments in the Dutch long-term care system: schedule and computation with Statistics Netherlands individual-level data

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Abstract

This document provides information on the schedule of co-payments on long-term care services in the Netherlands. It is intended for an audience interested in how co-payments work in the Netherlands, and for policy makers and applied researchers in particular. We focus primarily on the schedules up until the 2015 reform of the long-term care system. This document is a companion document to Tenand *et al.* (2021) who study the impact of co-payments on long-term care use. It has three aims. First, we provide a brief overview of the Dutch long-term care system. Second, we provide a detailed description of the co-payment rules for skilled home care and institutional care. Third, we explain which microdata from Statistics Netherlands (CBS) we use to proxy the income and wealth measures that are used to compute the co-payments.

Key-words: Long-term care, co-payments, simulations, microdata.

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How to use this document

This document is made publicly available to facilitate the replication of the empirical analyses shown in Tenand *et al.* (2021) and further empirical work on co-payments in the Dutch long-term care system. It is provided together with:

- an Excel document (*Tenand_Copayments_Parameters.xls*) that provides the values of the parameters that are needed to compute the co-payments;
- a script (*D.1.CP_NHuse_Copayments_ForGraphs.do*) with the code that enables to generate the co-payments given income and wealth information, based on the parameter values reported in *Tenand_Copayments_Parameters.xls*;
- a script (*D.1.CP_NHuse_CP_Graphs.do*) with the code that generates the graphs included in this document.

The values of the parameters of the co-payment scheme during the study period in Tenand *et al.* (2021) (2009-2015) were carefully cross-checked. For the years other outside this study period, we advise the reader to check the parameter values before using it for empirical work.

Contents

1 Introduction

This document discusses the co-payments in the Dutch public long-term care (LTC) insurance. In the Netherlands, LTC users pay a co-payment (*eigen bijdrage*), which depends on personal circumstances and the type of care received.

The objective of this document is threefold. First, we provide a general overview of the organization of the Dutch LTC system in recent years (Section 2). Second, we describe the co-payment rules. The computation of co-payments rely on income and wealth concepts used for personal taxation purposes, which we therefore introduce beforehand, in Section 3. We provide and graphically illustrate the schedules for home care in Section 5 and for institutional care in Section 4. Third, we explain which individual-level data from Statistics Netherlands (CBS) can be used to proxy the income and wealth definitions that are used to compute the co-payments in practice (Section 6). These data can be accessed under certain conditions and a confidentiality agreement for research purposes.

The co-payment schedule relies on a set of parameters, whose values are adjusted every year (usually in line with inflation). We collected the values for these parameters for years 2008-2019, in a companion Excel document.

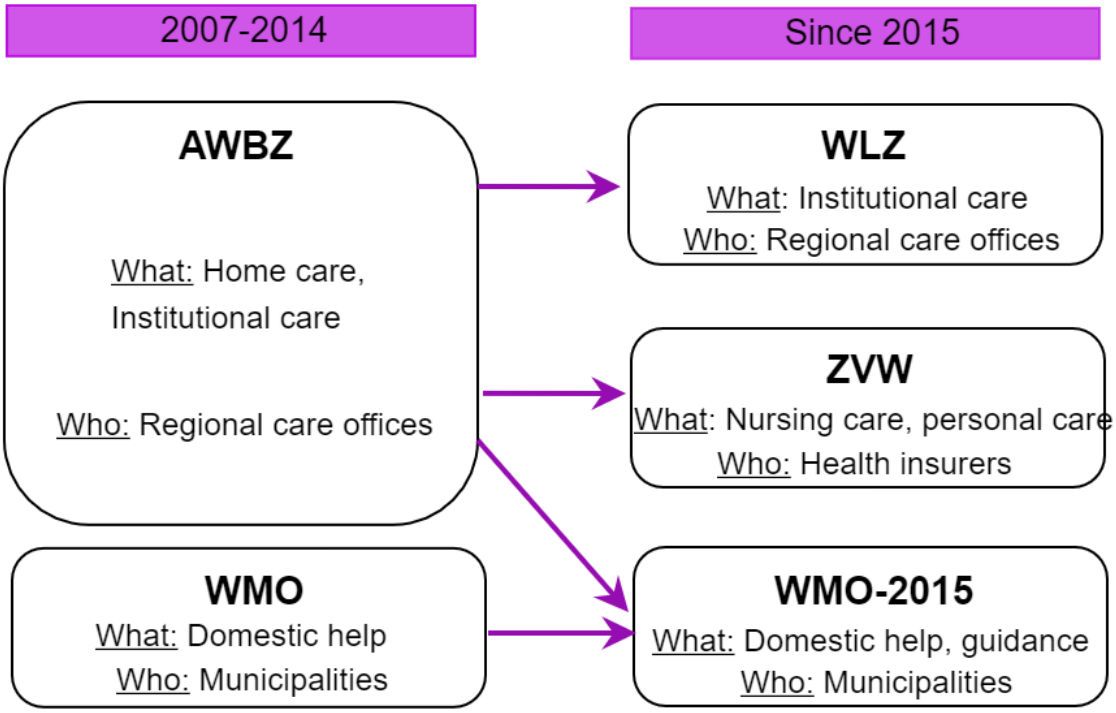
A few words of caution are warranted. We developed this document for an empirical study about the impact of a co-payment increase on nursing home admissions Tenand *et al.* (2021). As such, our ambition is *not* to provide a full description of the co-payment rules (which include a number of specific regimes), but to describe their most important features and general rules. Our goal was to simulate co-payments at the individual in a way that can proxy reasonably well the actual co-payments LTC users are subject to. This is the reason why, in Section 6, we mostly focus on the case of single LTC users (without a partner): the co-payment rules for individuals with a partner being much more complex, we have left them aside in our empirical investigation. Furthermore, we focus on the situation of individuals who have reached the legal retirement age (*AOW leeftijd*). The rules and values of some parameters can be different for working-age individuals. Finally, we refer primarily to the long-term care system as it stood before a major reform was implemented in 2015. Since then, the rules for computing co-payments on institutional care have remained the same overall, but have changed drastically for home care.

Whenever possible, we provide supporting references containing further details on the rules, and mention the features we leave aside for the sake of simplicity.

2 Brief overview of the Dutch long-term care system

The co-payment schedule differs for domestic help, home care and institutional care. Co-payments may also depend on the amount of care used (for domestic help and home care), the living situation (e.g. having a partner at home versus in an institution, taking care of children), age, income and assets. In 2015 the Dutch LTC was reformed, as shown in Figure 2.

Figure 1: The regulatory framework for long-term care in the Netherlands



Sources: Based on Maarse & Jeurissen (2016), p. 243.
Notes: For each scheme, we indicate which services are covered ('What') and who is in charge of organizing the scheme ('Who'). Regional care offices, municipalities and insurers are the 3 categories of implementing agencies that are involved in the Dutch LTC system.

Between 2007 and 2014, institutional care and home care other than domestic help was socially insured under the Exceptional Medical Expenses Act (*Algemene Wet Bijzondere Zietkekosten*, or AWB). Domestic help was partly funded by municipalities, under the Social Support Act (*Wet Maatschappelijke Ondersteuning*, or WMO).

In 2015, the restructuring of the LTC system mainly consisted of:

- AWBZ was replaced by the Long-Term Care Act (*Wet langdurige zorg*, or Wlz) in financing institutional care;

- Nursing care and personal care provided in the community is now financed by the Health Insurance Act (*Zorgverzekeringswet*, or ZVW);
- All other non-institutional care (social support) is now under the responsibility of municipalities (Wmo-2015).

Co-payments for institutional care and social support are collected by a central administration (*Centraal Administratie Kantoor*, or CAK). Before the 2015 reform, co-payments on home care would also be administered by CAK.

This document focuses mostly on co-payments for home care (Section 5) and institutional care (Section 4) as they were computed when the AWBZ system was in place. We also highlight how the 2013 co-payment reform (called the *vermogensinkomensbijtelling*) affected the way the co-payments for both home care and institutional care would be computed. Before presenting the schedules, we explain the income and wealth definitions that are used in the Netherlands.

3 Income and wealth definition in the Netherlands

The co-payments are income-dependent and wealth-dependent. To calculate a user's income and wealth, the same definitions apply as for income tax. This section describes these definitions.

3.1 Gross income

In the Netherlands, total (gross) income subject to the income tax (or *verzamelinkomen*) is made of 3 components, or 'boxes':

1. Box 1 income: income from work, benefits and rents;
2. Box 2 income: dividends and income from shares of substantial importance in a company;
3. Box 3 income: income from non-business financial assets and savings.

Box 1 includes income from work (salary, earnings of self-employed), insurance and social benefits (including pensions) as well as rents. For home-owners, an imputed rent is added to this component, which is computed using the administrative value of the main residence (*WOZ waarde*).

Box 3 does not include the actual income derived from wealth (as neither Dutch residents nor banks are not required to report actual returns on savings and financial assets to the Tax Office), but presumes it a fixed share of assets and savings. Until recently, this share was set to 4%. The definition of the assets taken into account to define box 3 income is explained in the next section.

In the rest of this document, total income from box 1, box 2 and box 3 is denoted as INC_BOX123.[1]

3.2 Treatment of wealth in box 3

The assets that are taken into account for the computation of box 3 income for what we call "assessable wealth". They include:

- Savings (deposits);
- Financial assets;
- Housing wealth other than main residence.

The following assets are excluded:

- Housing wealth on main residence;
- Business assets;
- Shares of a substantial importance (*aanmerkelijk belang*) in a company.

Assessable wealth is a *net* wealth concept (assets minus debts), as opposed to *gross* wealth. For housing wealth, the value of the mortgage (if there is one) is deducted from the house value. The general rule is that net housing wealth on main residence is excluded. This implies that long-term care users who are home owners benefit from lower co-payments, because the value of their main residence is not included in their wealth assessment. This is true in general for home care users, but also for nursing home residents in their first two years in institutional care: this is because the wealth of Y-2 is taken into account when computing co-payments charged in year Y.[2]

Assessable wealth (which we denote WEA_ASS) is taxed (or equivalently, added to box 3 income) only beyond a certain threshold. Furthermore, for individuals who have reached the statutory retirement age and whose box 1 and box 2 income is sufficiently low, the taxation threshold is further increased by an additional rebate.[3] We define box 3 wealth (denoted WEA_BOX3) as the amount of assessable wealth that is incorporated in the taxable income definition. This wealth is also taken into account for the computation of co-payments.

[1] In this Section and the following ones, we use capital letters to refer to the variables that we use for the data treatment and analyses, as they are labelled in the scripts (code).

[2] In addition, specific rules apply when the spouse of the nursing home resident remains in the house. See Wood *et al.* (2020) for a comprehensive presentation on how main residence is taken into account for the computation of co-payments in the Netherlands. Wood *et al.* (2020) analyze the vertical and horizontal equity implications of the specific status of the value of a home owner's residence.

[3] Long-term care users could also benefit from the disability scheme (Wtcg), which was phased out in 2014. These individuals may benefit from an additional exemption on their taxable wealth. We leave these special rules aside.

Denoting INC_BOX12 income from boxes 1 and 2 only, we have:[4]

$$WEA\_BOX3 = min(0, WEA\_ASS - thre\_wea) \quad (1)$$
$$\text{if } WEA\_ASS > thre\_wea\_max \mid INC\_BOX12 > thre\_wea\_2\_inc$$
$$WEA\_BOX3 = min(0, WEA\_ASS - thre\_wea - thre\_wea_2)$$
$$\text{if } WEA\_ASS \leq thre\_wea\_max,\ thre\_wea\_1\_inc < INC\_BOX12 < thre\_wea\_2\_inc$$
$$WEA\_BOX3 = min(0, WEA\_ASS - thre\_wea - thre\_wea\_1)$$
$$\text{if } WEA\_ASS \leq thre\_wea\_max,\ INC\_BOX12 < thre\_wea\_1\_inc \quad (2)$$

By definition:[5]

$$\begin{aligned} INC\_BOX123 &= INC\_BOX12 + INC\_BOX3 \\ &= INC\_BOX12 + 4\% \times WEA\_BOX3 \end{aligned} \quad (3)$$

4 The co-payment schedule for institutional care

We describe the rules for co-payments charged for institutional care. When eligible for institutional care, individuals can enter an institutional setting or choose to receive care at home instead. They are charged a co-payment that varies with their age, economic resources, household composition and the type of care they choose to receive. The schedule has remained unchanged after the 2015 reform (which is the year in which the AWBZ scheme was dismantled and WLZ was introduced).

Five main elements characterize the co-payment schedule applying to individuals eligible for institutional care:

1. A low-rate and a high-rate co-payment;
2. A positive relationship between individual economic resources and the co-payment;
3. A cap on the monthly co-payment;
4. A minimum monthly co-payment (applying only to the low rate co-payment);
5. The contribution income: the income measure that is used to compute either the low-rate or the high-rate co-payments;

[4] In the formulas below, expressions in capital letters indicate *variables*, while expressions in lower caps refer to *parameters* of the co-payment schedule.

[5] This was the case until tax year 2016. Since 2017, the computation of the income derived from wealth has changed.

6. The reference period: for institutional care, co-payments are computed on a monthly basis

Elements (2) to (5) are defined differently for the low-rate and high-rate co-payment. A reform that was implemented on 1 January 2013 led to a modification of the computation of the contribution income, with the addition of an additional fixed share of wealth. The 2013 reform therefore led to an increase in both the low-rate and the high-rate co-payment.

4.1 When are the high-rate and the low-rate regimes applicable?

The high-rate is the default regime. However, there are a number of situations in which the low-rate applies, including:

- The nursing home resident is married (or in a civil partnership) to a partner still residing in the community;
- The resident financially supports her or his children, has an entitlement to child benefits or has children who receive student support;
- The first 6 months of the first permanent admission to a nursing home;[6].

Furthermore, for partners who are both in a institutional care setting, the high-rate co-payment is charged to one of them but waived for the second one.[7]

4.2 The contribution income for the high-rate co-payment

The high-rate contribution income is based on the total income from boxes 1, 2 and 3 (see Section 3). We denote the contribution income for the high-rate co-payment as defined before the 2013 co-payment reform as $INC\_CONT\_HIGH\_PRE$; similarly, $INC\_CONT\_HIGH\_POST$ denotes the contribution income for the high-rate co-payment after the 2013 co-payment reform.

To derive the contribution income, we first step derive the available income (*beschikbaar inkomen*), denoted INC_AVAI. Available income is equal to: total income minus (i) income taxes paid (denoted here $TAXES$), (ii) health insurance premium (*aftrek Zorgverzekeringswet*, denoted here $PREMIUM$)[8] and (iii) an allowance for pocket money and clothing (*Zak- en kleedgeld*), and (iv) a further allowance. Until 2013, it was called *Toeslag op het zak- en kleedgeld*; since 2014, it

[6]The first 4 months since 2019.

[7]Another case in which someone is subject to the low-rate co-payment is when she opts for an equivalent package of home care services in-kind or long-term care vouchers (VPT, MPT or PGB). A specific rebate applies to the low-rate co-payment when one of this option is selected.

[8]This deduction is also computed based on income and is levied together with the income tax.

has been replaced by the *Aftrek AOW-gerechtigde leeftijd*).[9]

Formally, this gives:[10]

$$\begin{aligned} INC\_AVAI = INC\_BOX123 - (TAXES + PREMIUM) \\ - reb\_pocket - reb\_toeslag - reb\_aftrek \end{aligned} \tag{4}$$

In a second step, a further rebate is applied on available income. This rebate is non-linear.[11] [12]. Until the 2013 reform, this would give the contribution income for the high-rate co-payment:

$$\begin{aligned} INC\_CONT\_HIGH\_PRE &= INC\_AVAI \\ &\text{if } INC\_AVAI < inc\_thre\_low \\ INC\_CONT\_HIGH\_PRE &= inc\_thre\_low \\ &\text{if } inc\_thre\_low \leq INC\_AVAI < inc\_thre\_high \\ INC\_CONT\_HIGH\_PRE &= INC\_AVAI - 0.25 \times \big(INC\_AVAI - inc\_thre\_high\big) \\ &\quad - \big(inc\_thre\_high - inc\_thre\_low\big) \\ &\text{if } INC\_AVAI \geq inc\_thre\_high \end{aligned} \tag{5}$$

Up until 2013, the contribution income obtained in Equation (5) was multiplied by 102% to obtain the final contribution income.

Following the 2013 co-payment reform, the high-rate co-payment is equal to:

$$INC\_CONT\_HIGH\_POST = INC\_CONT\_HIGH\_PRE + 0.08 \times WEA\_BOX3 \tag{6}$$

As can be inferred by combining the previous equations, since the 2013 reform, assessable wealth (WEA_BOX3) enters both formulas twice : first, in the definition of INC_AVAI (which is based on INC_BOX123); second, in the definition of the contribution income directly. In economic terms, the reform increased the implicit taxation of wealth.[13]

[9] All these allowances or rebates have specific rates for singles versus individual with a partner, and for individuals who have reached the statutory retirement age versus those who have not.

[10] In the formula below, we disregard the specific treatment of labor income and the rebate for Wtcg beneficiaries. We also disregard the *compensatie vervalen ouderentoeslag* that was introduced in 2018.

[11] Since 2018, an additional allowance (called *compensatie vervalen ouderentoeslag*) is deducted, provided the individual has sufficiently high wealth but falls below an income threshold, and has reached the statutory retirement age. This was meant to compensate for the discontinuation of a rebate applied directly to assessable wealth after 2017 (*ouderentoeslag*, cf. Section 3).

[12] In addition, at this stage, 15% of labor income is subtracted from the income measure. We disregard this case, as virtually all disabled elderly beyond the statutory retirement age earn no labor income.

[13] In 2019, a new reform changed the wealth addition implemented in 2013, decreasing it from 8% to 4%. Formula (6) thus gives the definition for the contribution income between 2013 and 2018.

4.3 The high-rate co-payment

The co-payment is a function of the high-rate 'contribution income'. $CP\_NH\_HIGH\_j$ is the monthly high-rate co-payment, with $j = PRE$ (pre-reform) or $j = POST$ (post-reform). In general terms, it is simply equal to 1/12th of the contribution income, subject to a monthly cap *cp_cap*:[14]

$$CP\_NH\_HIGH\_j = min\Big(cp\_cap, max\big(0, (1/12) \times INC\_CONT\_HIGH\_j\big)\Big) \quad (7)$$

4.4 The contribution income for the low-rate co-payment

The low-rate co-payment depends on the low-rate contribution income, which is defined as:[15]

$$INC\_CONT\_HIGH\_PRE = INC\_BOX123 \quad (8)$$

$$INC\_CONT\_HIGH\_POST = INC\_BOX123 + 0.08 \times WEA\_BOX3 \quad (9)$$

where $INC\_CONT\_HIGH\_PRE$ denotes the contribution income until 2012, and $INC\_CONT\_HIGH\_POST$ the contribution income following the 2013 co-payment reform.

4.5 The low-rate co-payment

The monthly low-rate co-payment is equal to 1/12th of 12.5% of the low-rate contribution income. The low-rate co-payment charged every month is subject to a cap, which is substantially lower than the cap under the high-rate regime (€820 against €2,250 in 2014).

The co-payment reform that was implemented on 1 January 2013 also affected the computation of the low-rate co-payment in a similar way than for the high-rate co-payment. The monthly low-rate co-payment $CP\_NH\_LOW\_j$ ($j = PRE, POST$) was equal to:

$$CP\_NH\_LOW\_j = max\Big(\big(cp\_min\_low, min\big(cp\_cap\_low, max(0, (1/12) \times 12.5\% \times INC\_CONT\_LOW\_j\big)\Big) \quad (10)$$

, where cp_min_{high} and cp_cap_{high} are the minimum co-payment and the co-payment cap respectively.

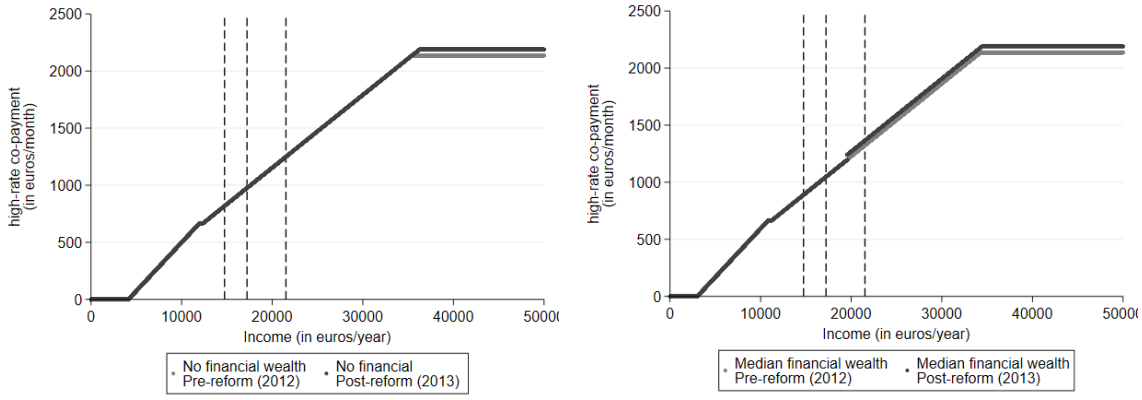
[14] Note that until 2014, individuals who benefited from the Wtcg disability scheme would receive an extra 8% rebate on their effective co-payment. In our analyses, we ignore this special case, as we are unable to identify who benefit from the Wtcg based on the microdata we have access to.

[15] This formula does not include the *compensatie vervalen ouderentoeslag* that was introduced in 2018.

4.6 Illustration

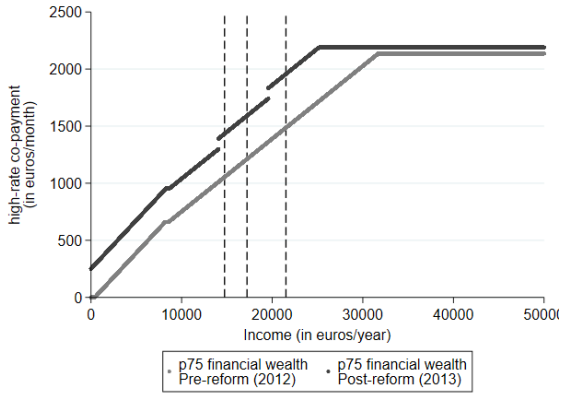
Here below we show the high-rate co-payment on nursing home care depending on income, for different levels of wealth.

Figure 2: Co-payment schedule for nursing home care before and after the 2013 reform depending on income, by level of financial wealth.

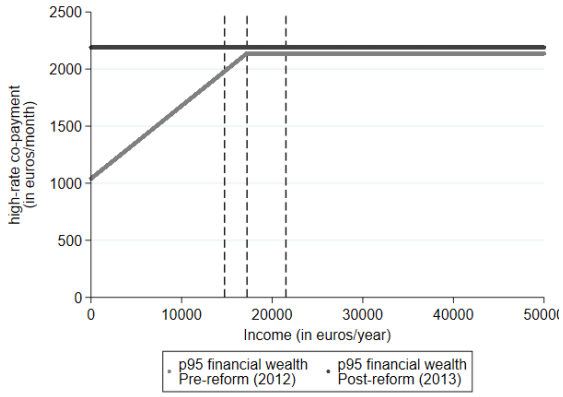


Panel A: No wealth.

Panel B: 50th percentile of wealth distribution.



Panel C: 75th percentile of wealth distribution.



Panel D: 95th percentile of wealth distribution.

NOTES: Authors' simulations. The grey curves are based on the co-payment rules and parameters for 2012, the black ones for 2013. Panel B: schedule for an individual at the 50$^{\text{th}}$ percentile of the wealth distribution (€28,000). Panel C: schedule for an individual at the 75$^{\text{th}}$ percentile of the wealth distribution (€92,000). Panel D: schedule for an individual at the 95$^{\text{th}}$ percentile of the wealth distribution (€455,000). The dashed vertical lines indicate the 25$^{\text{th}}$, 50$^{\text{th}}$ and 75$^{\text{th}}$ percentiles of the income distribution. The wealth and income distributions refer to the distribution of financial wealth (per capita) and the distribution of available income (per consumption unit) as reported in tax year 2010 in the 65+ Dutch population alive in 2012. The notches visible in Panels B and C are due to rebates on taxable wealth that apply to individuals below some income thresholds and a certain wealth level. The increase in the co-payment cap, visible in all four panels, reflects the fact that the schedule parameter values are indexed every year.

5 The schedule for home care

5.1 Co-payments on AWBZ-funded home care (until 2014)

Until 2014, co-payments on AWBZ-funded home care depended on the volume of care received, income and wealth, age and household composition. Because of a co-payment cap, an individual would never pay more than 30% of the total value of home care received.

This co-payments schedule has four main aspects:

1. The tariff of one additional hour of care that is charged to home care users;
2. The maximum co-payment (which depends on income and wealth), and a minimum co-payment that applies to all individuals below a given income threshold;
3. The income measure used to calculate the co-payment cap and the income floor;
4. For home care, co-payments are computed over a period of 4 weeks. Therefore, the care period calendar does not exactly match with calendar months and years. Most calendar years have 13 care periods; one year every 5 years only counts 12 periods.

5.2 Hourly tariff of home care

The price that individuals have to pay out of pocket for one extra unit of care is adjusted yearly. It represents only a fraction of the maximum tariffs paid to home care providers. For example, the hourly tariff charged to home care users was set to €13.40 in 2013 (18% of the tariff paid to providers for nursing care and 27% of the tariff of personal care in that year).

The tariff for home care applies per hour (for nursing care, personal care and individual guidance) or per half day (4 hours maximum, for guidance) if the care is provided in a group.

5.3 Minimum and maximum for co-payment on home care

All home care recipients must pay a minimum co-payment, set per care period (€19 in 2014). In addition, there is a maximum co-payment that depends on income and wealth.

5.4 Contribution income for the co-payment for home care

The income concept that is used by CAK to compute co-payments on home care services derives from the overall (gross) household income: INC_BOX123. Up until 2012, the contribution income for the computation of home care co-payments (which we denote $INC\_CONT\_HC\_PRE$) was simply:

$$INC\_CONT\_HC\_PRE = INC\_BOX123 \tag{11}$$

Since the co-payment reform that was implemented on January 1st 2013, a higher weight is given to wealth in the computation of co-payment. The contribution income for the computation of home care co-payment since this reform (denoted $INC\_CONT\_HC\_POST$) is computed as:

$$INC\_CONT\_HC\_POST = INC\_BOX123 + 8\% \times WEA\_BOX3 \tag{12}$$

5.5 Formula for co-payment on home care

As a first step, the maximum co-payment (under the pre-reform and the post-reform rules) is computed as:

$$CP\_HC\_MAX\_j = max(1.15\% \times INC\_CONT\_HC - exe\_hc), cp\_min\_hc) \tag{13}$$

with $j = PRE, POST$, and where:

- $INC\_CONT\_HC\_j$ the contribution income;
- *exe_hc*: an exemption, which depends on the recipient's age and household composition;
- *cp_min_hc*: the minimum co-payment.

In a second step, the effective co-payment for home care, CP_HC_j, is computed by applying a cap to the maximum co-payment, which is set as a function of the number of hours of care received. This enables that the total co-payment cannot exceed about a third of the total home care costs.

$$CP\_HC\_j = min(p \times H, CP\_HC\_MAX\_j) \tag{14}$$

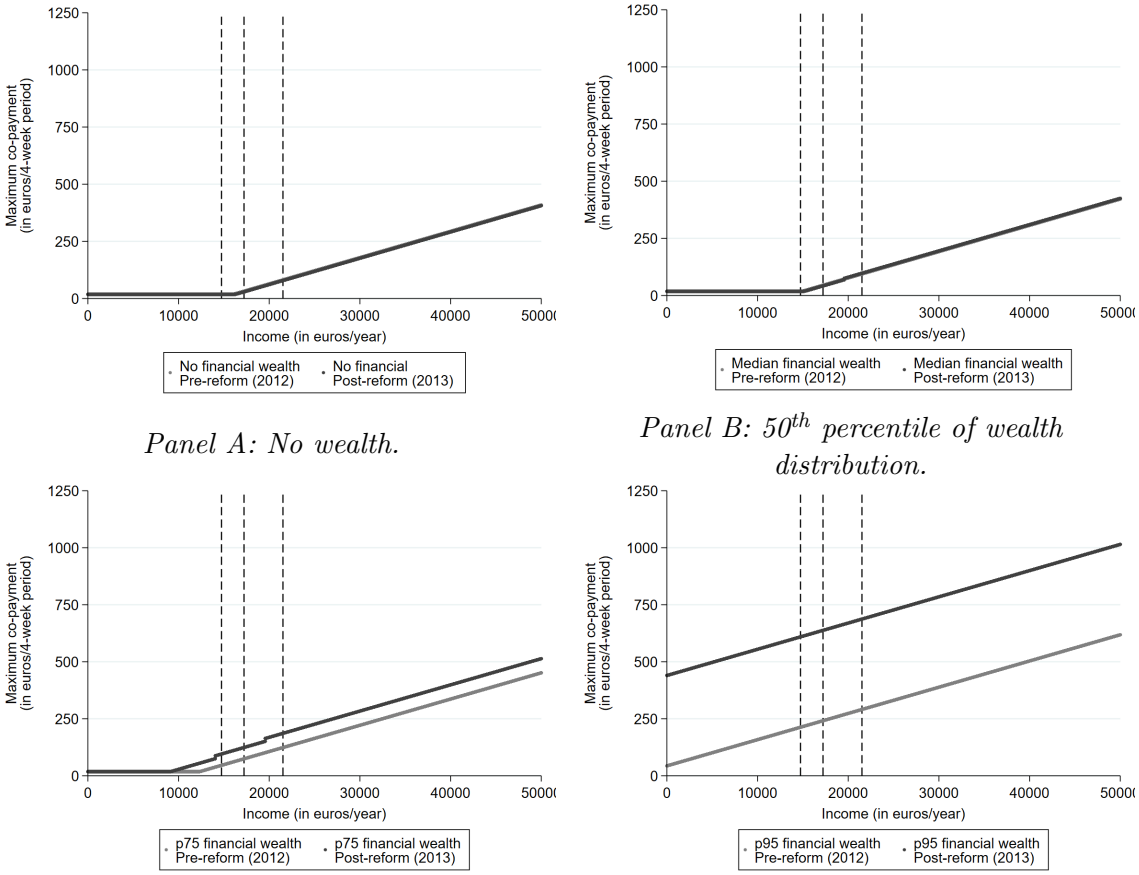
, with:

- p: the unit price of care charged to home care users (in euros);
- H: the number of hours of home care consumed by the household members during the care period.

5.6 Illustration

Below, we show the maximum co-payment (or cap) on home care depending on income, for different levels of wealth.

Figure 3: Maximum co-payment for home care before and after the 2013 reform depending on income, by level of financial wealth.



Panel A: No wealth.

Panel B: 50th percentile of wealth distribution.

Panel C: 75th percentile of wealth distribution.

Panel D: 95th percentile of wealth distribution.

NOTES: Authors' simulations. The grey curves are based on the co-payment rules and parameters for 2012, the black ones for 2013. Panel B: schedule for an individual at the 50$^{\text{th}}$ percentile of the wealth distribution (€28,000). Panel C: schedule for an individual at the 75$^{\text{th}}$ percentile of the wealth distribution (€92,000). Panel D: schedule for an individual at the 95$^{\text{th}}$ percentile of the wealth distribution (€455,000). The dashed vertical lines indicate the 25$^{\text{th}}$, 50$^{\text{th}}$ and 75$^{\text{th}}$ percentiles of the income distribution. The wealth and income distributions refer to the distribution of financial wealth (per capita) and the distribution of available income (per consumption unit) as reported in tax year 2010 in the 65+ Dutch population alive in 2012. The notches visible in Panels B and C are due to rebates on taxable wealth that apply to individuals below some income thresholds and a certain wealth level.

It is important to note that Figure 5.6 shows the maximum co-payment that applies for a given level of income and wealth, over a care period of 4 weeks. As explained before, the actual co-payment for home care depends on the volume of

home care received. As a consequence, the extent to which the co-payment reform actually affected individuals depends on their expected, or counterfactual, use of home care. Take the example of an individual with very high wealth as displayed in Panel D of Figure 5.6, and a median income. The maximum co-payment she would pay under the pre-reform rules is about €250, up to €650 under the post-reform rules. In 2014, the tariff for one hour of home care that is used for the computation of the co-payment for home care is €14. If the individual was using less than 18 hours of home care per 4-week period, then she did not reach her pre-reform maximum co-payment (250/14=17.8). The reform had then no impact on her counterfactual co-payment. However, if she was using more than 46 hours per 4-week period (650/14=46.4), then the magnitude of the co-payment change induced by the reform corresponds to difference between her post-reform and pre-reform maximum co-payments. Finally, for any counterfactual volume of home care between 18 and 46 hours, the impact of the reform in terms on the price of home care is higher if the counterfactual home care use is larger.

6 Simulating co-payment using income and wealth variables with Statistics Netherlands individual-level data

In our research project, we simulate co-payments that a given individual would have to pay if she would use LTC services. In order to do so, we combine administrative data at the individual and household level, as provided by Statistics Netherlands (CBS).

6.1 CBS microdata on income and wealth

We rely on household income and household wealth data. In order to link each individual to relevant income and wealth information, we rely on a bridge table that links together the individual and household unique identifiers (`rinpersoon` and `rinpersoons` on one hand, and `rinpersoonkern` and `rinpersoonskern` respectively).

6.2 Wealth measures

For the computation of co-payments levied in year Y, CAK refers to wealth as of January, 1st of year Y-2.

The wealth dataset 'VEHTAB' of year Y provides wealth as of December, 31st of year Y-1. When interested in (the co-payments levied in) year Y, we therefore link VEHTAB of year Y-2, which provides wealth as of December, 31st of year Y-3, assuming it proxies wealth as of January, 1st of year Y-2.

Table I: CBS wealth variables used to proxy box 3 wealth

Variable	Definition
VEHW1000VERH	Total net wealth
VEHW1121WONH	Gross value of main residence
VEHW1210SHYH	Mortgage on main residence
VEHW1140ABEH	Value of substantial shares
VEHW1130ONDH	Professional assets

We derive assessable wealth (i.e. the wealth taken into account for the computation of box 3 income) as:

$$\begin{aligned} WEA\_ASS = & VEHW1000VERH \\ & - (VEHW1121WONH - VEHW1210SHYH) \\ & - (VEHW1140ABEH + VEHW1130ONDH) \end{aligned} \tag{15}$$

6.3 Income measures

For the computation of co-payments levied in year Y, CAK uses information on income from two years before, Y-2.

The income variables we use come from the household income data: 'IHI' (*Integraal Huishoudens Inkomen*, household income). IHI data of year Y provide the income earned in year Y, and the tax household composition reported that same year. Therefore, when interested in the co-payments paid in year Y, we use IHI from Y-2.[16]

Table II: CBS wealth variables used to proxy income

Variable	Definition	Comments
BVRBRUTINKH	Gross household income	Includes expected income from wealth
BVRBESTINKH	Available household income	Gross household income, minus taxes and contributions (including health insurance premium) plus transfers

We use these variables to proxy the information used in the computation of co-payments, as explained in Sections 4 and 5:

$$INC\_BOX123 = BVRBRUTINKH \tag{16}$$

$$TAXES + PREMIUM = (BVRBRUTINKH - BVRBESTINKH) \tag{17}$$

For individuals with a mortgage on their main residence, proxying income from boxes 1, 2 and 3 by the gross household income may lead to a (limited) overestimation: the mortgage interest can be deducted from gross income (up to a ceiling) for the computation of income from boxes 1, 2 and 3.[17] The mortgage interest deduction scheme also implies that the sum of the income tax and the national health insurance premium can be biased upward.

[16]Note that even for single households, CBS releases 'household-level' information on income separately from individual-level information. This is because in the Netherlands some income concepts are defined at the household level, and not at the individual level (e.g. income from all 3 boxes, and disposable income).

[17]See Wood *et al.* (2020) for additional details.

6.4 Information on household composition and age

As mentioned earlier, we focus on the co-payment schedule applicable to individuals who are singles (for tax purposes) and who have reached the statutory retirement age (AOW).

We use information on household composition from the income information (variable $BVRAHL$ from IHI) to know whether the individual is single or not (in $Y-2$).

To retrieve their age, we use the population registers (dataset $GBAPERSOONTAB$), also provided by CBS. They include the month and year of birth of each Dutch resident. The AOW age was set to 65 until recently, but has been gradually increased and has become birth cohort-specific.[18]

[18] See Atav *et al.* (2021) for the AOW age by birth cohorts.

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